3. Diana

Program Name: Diana.java **Input File: diana.dat**

Diana recently completed an Algebra class where she learned about the Cartesian or X-Y coordinate system where points are identified by x-y coordinates as point *p* with coordinates (x, y). One of the things that really amazed her was the formula for computing the distance between any two points. Her teacher mentioned that the formula for a 3-dimension (3-D) coordinate system with an additional Z axis is similar. A 3-D point is defined by adding a third value, *z*, for the third dimension, so point *p* becomes (x, y, z).

Given two 3-D points p_1 as (x_1, y_1, z_1) and p_2 as (x_2, y_2, z_2): the distance between the points can be calculated using the following formula.

$$\text{Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$$

Diana is still a little awkward with the calculator and has asked the school programming team to build her a program she can use to double-check her calculations.

Write a program to calculate the distance between any two 3-D points with distances rounded to exactly 2 decimal places as shown in the sample output.

Input: A list with no more than 20 sets of coordinates. Each line will contain two complete sets of floating point coordinates with six values separated by whitespace as shown below. The individual coordinate values (V) will be in the range $-50{,}000.00 \leq V \leq 50{,}000.00$. Each line of input contains values in the following order:

$$x_1 \quad y_1 \quad z_1 \quad x_2 \quad y_2 \quad z_2$$

Output: For each set of coordinates, output a single line containing the distances rounded to 2 decimal places.

Sample input:

```
-5359.76 32044.22 7882.16 45156.50 -41396.57 5497.94
-37525.56 9046.11 2285.20 -45759.01 13547.75 -3877.51
48809.73 4712.09 -28657.86 4186.49 26991.17 -33937.56
35847.36 -19489.78 -46732.41 44807.97 2227.51 28611.97
```

Sample output:

```
89169.09
11226.46
50154.42
78922.17
```